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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/506,713	02/18/2000	Noriaki Mizutani	49584(904)	7799

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EXAMINER

MANOHARAN, VIRGINIA

ART UNIT	PAPER NUMBER
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1764

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DATE MAILED: 07/17/2002

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Applicati n No.	Applicant(s)	
	09/506,713	MIZUTANI ET AL	
	Examiner	Art Unit	
	Virginia Manoharan	1764	

-- Th MAILING DATE of this communication appears on th cover sheet with th correspondence address --
Peri d f r R ply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 April 2001.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-13 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 2&4 . 6) ☐ Other: _____

Art Unit: 1764

DETAILED ACTION

Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

The abstract of the disclosure is objected to because of undue length. Correction is required. See MPEP § 608.01(b).

The specification has not been checked to the extent necessary to determine the presence of all possible minor errors e.g. typographical grammar, idiomatic, syntax and etc. Applicants' cooperations are requested in correcting any errors of which applicants may become aware in the specification.

Claims 3- 13 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a). It is unclear what constitutes the following claimed limitations within the context of the claimed invention.

1. The "d" in claim 3 ; and
2. "...the "or higher" in claims 7, 10 and 13,"

(b). The claimed "if" is an indefinite term. See claims 4 and 8-9.

(c). Claims 9 and 13 provide for the use of a perforated tray tower without downcomer, but, since the claim does not set forth any steps involved in the method/process, it is unclear what

Art Unit: 1764

method/process applicant is intending to encompass. A claim is indefinite where it merely recites a use without any active, positive steps delimiting how this use is actually practiced.

Claims 9-13 are is rejected under 35 U.S.C. 101 because the claimed recitation of a use, without setting forth any steps involved in the process, results in an improper definition of a process, i.e., results in a claim which is not a proper process claim under 35 U.S.C. 101. See for example *Ex parte Dunki*, 153 USPQ 678 (Bd.App. 1967) and *Clinical Products, Ltd. v. Brenner*, 255 F. Supp. 131, 149 USPQ 475 (D.D.C. 1966).

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-3, 7-8 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over The Hashimoto et al publication (Properties of Perforated Trays Devoid of Downcomers) and Mitsuho et al "Handbook of Distillation Engineering."

The claimed perforated tray without downcomer provided with a plurality of holes, wherein each of the plurality of holes has a diameter d in a range of from 10mm to 25mm, each of the plurality of holes is separated from an adjacent hole by a center-to center distance in a range of from $1.2d$ to $3d$., the perforated tray without downcomer has a thickness in a range of from 2mm to 8mm, and the perforated tray without downcomer has an opening ratio in a range of from

Art Unit: 1764

10% to 30% as broadly claimed in claim 1, and the method of distillation using the perforated tray satisfying the condition such as the first condition being such that an amount of wetting liquid with respect to a cross-sectional area of the tower is $0.3\text{m}^3/\text{m}^2\text{h}$ or higher, and the second condition being such that an amount of wetting liquid with respect to a sum of areas of the plurality of holes is $1\text{m}^3/\text{m}^2\text{h}$ or higher as broadly claimed in claim 13 are deemed to be rendered obvious in the Hashimoto et al publications at page 4, lines 44-53; page 5, lines 6-10 and 23-28 and at page 3, second full paragraph as well as pages 10-11 of the Mitsuho et al publication.

Claims 4-6 and 9-12 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, second paragraph, set forth in this Office action.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- A. Stage discloses a perforated-tray column.
- B. Uchiyama et al discloses a perforated plate or guide plate tower without a weir and a downcomer.
- C. Downs et al, Tanigawa et al and Mennen all disclose a gas-liquid contact system.
- D. Trager discloses a process for vapor-liquid contacting and fractional distillation
- E. Jonkers et al discloses a perforated reaction tray.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to V. Manoharan whose telephone number is 703-308-3844. The examiner can normally be reached on Tuesday-Friday from 7:30 a.m. to 6:00 p.m..


Art Unit: 1764

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ms. Marion Knode, can be reached on (703) 308-4311. The fax phone number for the organization where this application or proceeding is assigned is (703)-872-9310.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

Manoharan/sp

July 2, 2002


VIRGINIA MANOHARAN
PRIMARY EXAMINER
ART UNIT 1281/661
7/16/02